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LIFO in perspective;

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LIFO
in Perspective

INTRODUCTION

The increased rate of inflation has significantly affected the nature and amount of earnings reported by many corporations. At the same time, shortages of available credit and related high interest rates have emphasized the importance of maximizing cash flow from operations. The combination of these considerations has resulted in substantial current interest in the LIFO (last-in, first-out) method of determining inventory cost.

Much has been written recently about the LIFO method. Some have suggested that the use of LIFO will eliminate "inventory profits," i.e., the impact of inflation on earnings. Others have suggested that LIFO may be the only proper valuation method in periods of rising prices.

The purpose of this booklet is to describe the principal methods of inventory valuation, to illustrate the comparative results of using the FIFO (first-in, first-out) and LIFO methods, to discuss important matters to be considered in a change to the LIFO method and to summarize basic financial reporting and income tax requirements for making such a change. It is intended for the orientation of individuals who have not yet had direct experience with LIFO.

DESCRIPTION OF INVENTORY METHODS

Generally accepted accounting principles require that inventories be valued at the lower of cost or market. The three principal valuation methods, which assume different flows for matching costs with sales, are as follows:

- ***First-In, First-Out (FIFO).*** Costs are assumed to flow in chronological order. The first costs incurred (including the beginning inventory) are charged to cost of sales, and the most recent costs are used to value inventory at the balance sheet date.
- ***Average Cost.*** Cost of sales and inventories at the balance sheet date are based on a weighted or moving average unit cost of beginning inventory and acquisitions during a specified period.
- ***Last-In, First-Out (LIFO).*** Costs are assumed to flow in reverse chronological order. The most recently incurred costs are charged to cost of sales, and the first costs incurred (including the beginning inventory) are used to value inventory at the balance sheet date.

The LIFO method has been acceptable for financial reporting and tax purposes since 1939. If the LIFO method is selected for tax purposes , it must also be used for financial reporting purposes. The tax savings resulting from use of the LIFO method cannot be obtained without the use of this method for financial reporting.

EFFECTS OF LIFO METHOD

In an inflationary period the principal effects of a change to LIFO, assuming a 48 percent tax rate, generally are as follows:

Nature of Effect	*Percent of LIFO Adjustment*
Increase cash flow	48%
Decrease reported earnings	52%
Decrease reported working capital and stockholders' equity	52%

The "LIFO adjustment" and the possible effects of the LIFO method in future years are explained later.

TREND TO LIFO METHOD

Accounting Trends and Techniques—1974, a survey by the American Institute of Certified Public Accountants of the 1973 published annual reports of 600 major U.S. corporations, indicates the use of the above methods as follows:

	Number of Companies	*Percent of Total*
FIFO	377	49%
Average	242	31
LIFO	150	20
Total	769	100%

The total exceeds 600 because some companies use more than one method. Of the 150 companies using LIFO, 8 use it for all inventories, 49 for more than 50 percent, 68 for less than 50 percent. Twenty-five companies did not specify the extent of their use of LIFO.

As of November, at least 8 of the 100 largest industrial corporations listed in the 1974 Fortune Directory have announced current-year changes to LIFO. The estimated aggregate effect of the changes will be to reduce the 1974 reported earnings of these eight companies by approximately $500 million.

COMPARATIVE ILLUSTRATION

The following simplified illustration is presented to show the nature and effect of the FIFO and LIFO methods and to provide a reference point for later comments. This illustration is based on the following assumptions:

	Unit Cost	*Number of Units*
Beginning inventory	$ .80	200
Purchases:		
Before cost increase	$1.00	600
After cost increase	$1.20	1800
Total		2600
Sales		2000
Ending inventory		600

It is further assumed that the beginning inventory was on the FIFO basis and that replacement cost was $1.00 at the beginning of the year.

	Unit Cost	*Cost of Sales*		*Ending Inventory*	
		Units	*Amount*	*Units*	*Amount*
FIFO Method					
Beginning inventory	$ .80	200	$ 160		
Earlier purchases	1.00	600	600		
Recent purchases	1.20	1200	1440	600	$720
Totals		2000	$2200	600	$720
LIFO Method					
Beginning inventory	$ .80			200	$160
Earlier purchases	1.00	200	$ 200	400	400
Recent purchases	1.20	1800	2160		
Totals		2000	$2360	600	$560

As indicated earlier, the differences in cost of sales and in ending inventory result from the different assumptions as to the flow of costs. Under FIFO the entire ending inventory in this example is valued at the cost of $1.20 for the recent purchases; under LIFO the "layers" of earlier acquisitions that are assumed to comprise the ending inventory are valued at their respective costs. The resulting difference—referred to as the "LIFO adjustment"—may be analyzed as follows:

	Unit Cost			*Units in Inventory*	*LIFO Adjustment*
	FIFO	*LIFO*	*Decrease*		
Layers in ending inventory:					
Beginning	$1.20	$ .80	$.40	200	$ 80
Current increase	1.20	1.00	.20	400	80
Total				600	$160

PREFERABILITY OF INVENTORY METHODS

Each of the inventory methods described above is in accordance with generally accepted accounting principles. However, Accounting Principles Board Opinion No. 20 requires that a change to an alternative acceptable accounting principle must be justified on the basis that the newly adopted method is preferable. The Financial Accounting Standards Board clarified the definition of preferability in its Interpretation of Opinion No. 20, stating that "preferability among accounting principles shall be determined on the basis of whether the new principle constitutes an improvement in financial reporting and not on the basis of the income tax effect alone."

Opinion No. 20 also requires that the justification for a change in accounting principle be disclosed in the financial statements of the period of change. A change to LIFO is usually justified as providing an improved matching of costs and revenues in periods of inflation.

The Matching Concept

The first item to be considered in the study of a possible change in inventory method is whether the change will, in fact, result in an improved matching of costs and revenues. The inventory method affects the costs to be reported, but the sales pricing pattern affects the sales with which the costs are to be matched. Therefore the matching depends, to a considerable extent, on the timing of the response of selling prices to cost increases.

To illustrate the matching concept the following simplified cost/price relationships in an inflationary period are assumed:

1. Immediate response—selling prices are increased concurrently with increases in replacement cost, and therefore existing inventory is sold at the higher price.

2. Delayed response—selling prices are not increased until existing inventory is sold at the current price.

Additional assumptions used in these illustrations are:

1. Costs and quantities are as assumed in the preceding section.

2. Two hundred units are sold prior to the cost increase, and the inventory at that date is 600 units.

3. Selling prices are set at 125 percent (to yield a 20 percent gross profit rate) of the "cost basis" applicable to the respective pricing patterns described above.

Based on these assumed cost/price relationships, the results of using the FIFO and LIFO methods are as follows:

	Units			Results	
	Number	Cost Basis	Selling Price	FIFO	LIFO
Immediate Response					
Sales:					
Prior to cost increase	200	$1.00	$1.25	$ 250	$ 250
After cost increase	1800	1.20	1.50	2700	2700
Total	2000			2950	2950
Cost of sales (from page 4)				2200	2360
Gross profit				$ 750	$ 590
Gross profit rate				25%	20%
Delayed Response					
Sales:					
Prior to cost increase	200	$ .80	$1.00	$ 200	$ 200
After cost increase:					
Purchases prior to cost increase	600	1.00	1.25	750	750
Purchase after cost increase	1200	1.20	1.50	1800	1800
Total	2000			2750	2750
Cost of sales (from page 4)				2200	2360
Gross profit				$ 550	$ 390
Gross profit rate				20%	14%

	Inventory Method				Difference	
	FIFO		LIFO			
Pricing Pattern						
Immediate response	$750	25%	$590	20%	$160	5%
Delayed response	550	20%	390	14%	$160	6%
Difference	$200	5%	$200	6%		

Certain factual observations concerning the preceding illustrations are presented below. These should be helpful in considering the different opinions that follow about the preferability of inventory methods.

1. The immediate-response pricing pattern would result in an *increase* in sales and in gross profit of $200, regardless of the inventory method.

2. The LIFO inventory method would result in a *decrease* in ending inventory and in gross profit of $160, regardless of the pricing pattern.

3. Data concerning the ending inventory are as follows:

	FIFO	*LIFO*
Sales value (600 units at $1.50)	$900	$900
Inventory valuation (page 4)	720	560
Potential gross profit	$180	$340
Potential gross profit rate	20%	38%

4. Assuming no change in sales prices, unit costs or inventory quantities, the reported gross profit in the future would be at the 20 percent rate under *either* inventory method. None of the potential excess of $160 under the LIFO method would be reported unless the inventory quantity declines below 600 units. (See page 8 for further discussion of future effects under LIFO.)

Conceptual Issues

Assuming a delayed-response pricing pattern, we believe most accountants and others concerned with financial reporting would agree that FIFO is an appropriate method because it maintains the normal gross profit rate (20 percent in the illustration) inherent in the pricing pattern.

Assuming an immediate-response pricing pattern, which is implied by most of the current public discussion of inventory methods, there is more difference of opinion as to which method is preferable.

Proponents of LIFO believe it is preferable because it excludes from income "illusory" or "paper" "inventory profits" and thereby reports only the normal rate of gross profit, which improves the comparability and predictability of financial statements.

Proponents of FIFO believe it is preferable because the so-called "inventory profits" were actually realized profits from completed sales and therefore—even though potentially nonrecurring—should be reported to present the complete results of operations in the income statement and a more realistic inventory valuation in the balance sheet.

Three assumptions used in the illustrations presented have been overly simplified in order to identify clearly the factual elements underlying the conceptual issues summarized in the two preceding paragraphs. The first of these was that the inventory quantity at the date of the cost

increase was the same as that at the end of the year. The second was that the price response was proportional to the cost increase. The third was that the timing of the price response was either immediate or delayed as described earlier.

Variations in either direction from these assumptions ordinarily would be expected because of management decisions and external factors such as competition, market conditions or government regulation. In the preceding illustrations such variations would change the magnitude but not the nature of the differences shown in the comparative summary on page 6. Therefore, conclusions as to the preferability of inventory methods for accounting purposes depend both on the viewpoint concerning the conceptual issues and on the facts as to the pricing pattern in the circumstances.

OTHER CONSIDERATIONS IN A CHANGE TO THE LIFO METHOD

If a change to the LIFO method is considered preferable based on existing conditions, the following additional matters should be considered:

Future Effect of the LIFO Method

Inventory cost at the beginning of the year of change establishes the LIFO base cost. Inventory quantity increases are "layered," based on the costs in the years of increase. Decreases are applied to the layers in reverse chronological order. Consideration should be given to the relationship of current costs and quantities to those expected in future periods because of the potential reversal of the benefits of a change to LIFO.

Cost or Quantity Increases. The initial effects of a change to the LIFO method—a reduction in reported earnings and working capital and reduced tax payments—will be repeated in future periods if costs and/or quantities continue to increase.

Cost Decreases. If costs decrease in future periods, part or all of the tax benefits realized in the year of change will reverse. In addition, if costs decrease to a level below the LIFO "base," the inventory valuation will be "frozen" for tax purposes at higher amounts than would result from the use of other methods. In the earlier illustration, in the year following the change to LIFO, the first 600 units in ending inventory will be valued at $560 for tax purposes. If the current unit cost should decrease below the $.93 LIFO unit cost ($560/600 units), the initial tax benefit of the change to LIFO would fully reverse. In addition, no tax deduction would be allowed for the excess of the LIFO cost of the ending inventory over its current cost because a writedown to market value is not deductible under the LIFO method (although the writedown would be charged to accounting income, net of deferred tax effect, as required by generally accepted accounting principles).

A subsequent change from LIFO to another method would require the approval of the Internal Revenue Service. The IRS may require the benefit of the change back from LIFO (the excess of LIFO cost over the inventory cost under the other method) to be spread over a period of ten years.

Cost decreases could result from changes in market conditions or from improvements in purchasing or production. The likelihood and impact of such decreases under the LIFO method should be considered carefully.

Quantity Decreases. Quantity decreases (sometimes referred to as "liquidation" of LIFO inventories) also could result in the reversal of prior tax benefits. Quantity decreases, however, unlike cost decreases, would not result in the payment of additional taxes on a cumulative basis (unless tax rates were higher in the period of reversal).

Quantity decreases also could result in a reversal of the improved matching which was an initial benefit of a change to LIFO. In the earlier illustration, if quantities decreased in the year following the change to LIFO, the gross profit rate on each unit liquidated at the selling price of $1.50 would be 38 percent.

Companies subject to significant quantity variances due to strikes, supply shortages or other factors should consider carefully the impact of the LIFO method on financial reporting.

Inventory Adjustments for Tax Purposes

Any writedown of inventory to market value at the end of the year preceding a change to LIFO must be restored by filing an amended return for that year and paying the additional income taxes. In addition, the beginning LIFO inventory for manufacturers must include (by December 31, 1975 for calendar-year companies) all costs required by the full absorption regulations issued by the IRS in September 1973. The tax effect of including these additional costs may be spread over a ten-year period; nonrecognition of pre-1954 adjustments is allowed.

Tax Carryovers

Consideration should be given to the impact of a LIFO change on the utilization prior to expiration of any carryovers of net operating losses, investment credit or foreign tax credit. Consideration of other tax-planning alternatives may be necessary.

IRS Conformity Requirements

Internal Revenue Procedure 73-37 permits the disclosures required by APB Opinion No. 20 in reports for the year of change to LIFO. These disclosures are described in the following section. If any additional disclosures are contemplated—for example, in the president's letter or

financial highlights—it should be determined that such disclosures will not invalidate the LIFO election, considering the current views of the IRS.

In annual reports for subsequent years , disclosure of the effect of LIFO on income is not permitted. Disclosure in these reports is limited to the excess of replacement or current cost of inventories over the LIFO cost. Disclosure of accounting provisions to reduce LIFO cost of inventories to market value will not violate IRS conformity requirements.

Effects of Reduced Earnings, Working Capital and Stockholders' Equity

Management should consider the possible impact of lower reported earnings, working capital and stockholders' equity on the following:

1. Loan covenants based on specified amounts of working capital, retained earnings, etc.
2. Credit ratings, borrowing capacity, etc., based on debt/equity ratios or other factors
3. Dividend policy
4. Incentive compensation based on earnings
5. The market value of equity securities

Increased Recordkeeping

IRS regulations require that records be maintained in conformity with the inventory method selected for tax purposes. The degree of complexity of these records will vary depending on the LIFO costing procedures used. In any event, increased recordkeeping will result. The increase may be mitigated by the use of statistical sampling techniques under certain conditions specified by the IRS.

FINANCIAL REPORTING OF A CHANGE TO THE LIFO METHOD

Month of Change

Companies that report to the Securities and Exchange Commission should report the change to the LIFO method, if the effect is material, on Form 10Q for the period of change or, if the 10Q is not due, under item 13 of Form 8-K for the month of change.

Interim Financial Statements

The following reporting requirements are specified in a Proposed Statement of Financial Accounting Standards issued by the FASB as an exposure draft in November 1974.

The nature of and justification for the change and its effect on income before extraordinary items, net income and per share amounts for the period of change should be disclosed in the financial statements for that period. Financial statements for pre-change interim periods of the current year should be restated by applying the LIFO method retroactively. The effect of the change on, and the restated amounts of, income before extraordinary items, net income, and per-share amounts for pre-change interim periods should be disclosed in the financial statements for the period of change. Similar disclosures would be required for the effects on post-change interim periods of the year of change.

If the change is made in the fourth quarter and a publicly traded company does not issue a fourth quarter report to its securityholders, the disclosures of the effect of the change on interim periods should be made in the annual report for the year of change.

Annual Report

The nature of and justification for the change and its effect on net income and earnings per share should be disclosed. The LIFO adjustment should be included as an element of cost of sales. See the preceding paragraph for possible additional disclosure of a fourth quarter change to LIFO.

Illustrative Disclosures

The FASB's Proposed Statement includes the following examples of disclosures, in interim financial statements, of a change to the LIFO method:

A Change to LIFO During the First Quarter of the Year

> In the first quarter of 19x5, the Company changed its method of inventory pricing from...(state previous method)...used previously to the LIFO method because...(state justification for change and reasons for not disclosing the cumulative effect on, and pro forma amounts for, prior periods). The effect of the change in the first quarter of 19x5 was to decrease net income by $40,500 ($.04 per share).

A Change to LIFO During a Subsequent Quarter

> In the third quarter of 19x5, the Company changed its method of inventory pricing from...(state previous method)...used previously to the LIFO method because...(state justification for change and reasons for not disclosing cumulative effect on, and pro forma amounts for, prior periods). The effect of the change in the three months and nine months ended September 30, 19x5 was to decrease net income by $49,500 ($.05 per share) and $135,000 ($.14 per share), respectively. The effect of the change on the first and second quarters of 19x5 was to decrease net income by $40,500 ($.04 per share) to $1,055,000 ($1.06 per share) and $45,000 ($.05 per share) to $1,250,000 ($1.25 per share), respectively.

Alternatively, the last sentence of the note could be replaced with the following tabular disclosure:

> The effect of the change in the first and second quarters of 19x5 is as follows:

	Three Months Ended	
	March 31, 19x5	*June 30, 19x5*
Net income as originally reported*	$1,095,500	$1,295,000
Effect of change to LIFO method of inventory pricing	(40,500)	(45,000)
Net income as restated	$1,055,000	$1,250,000
Per share amounts:		
Net income as originally reported*	$1.10	$1.30
Effect of change to LIFO method of inventory pricing	(.04)	(.05)
Net income as restated	$1.06	$1.25

*Disclosure of net income as originally reported is not required.

The annual report disclosures required by APB Opinion No. 20 would generally follow the first example above. The effect of the change on net income and earnings per share for the full year would be substituted for the quarterly information in the last sentence.

A typical disclosure of the justification for a change to LIFO is: "Because the LIFO method matches current costs with current revenues, this change results in a more realistic reporting of income."

FEDERAL INCOME TAX PROCEDURES

Internal Revenue Service regulations on the use of the LIFO method are detailed and complex. These regulations should be read carefully, taking into consideration the specifics of the Company's inventory—for example, the components of inventory, fluctuations in costs and quantities, natural business unit groupings, etc. The following sections outline briefly the procedures to be followed in changing to the LIFO method and the basic aspects of the application of the method.

Election of LIFO

Generally, the LIFO method can be adopted without the prior approval of the Internal Revenue Service. A statement of the election is made on IRS Form 970 which is attached to the federal income tax return for the year of change. However, a change to the LIFO method cannot be elected after income for the year has been determined and reported to shareholders or creditors using any other inventory method.

If the LIFO method has been used previously and a change to another method has been made in the meantime, a change back to LIFO requires the prior approval of the IRS.

Application of LIFO

LIFO inventories can be computed using either the specific-goods or the dollar-value method. For simplicity, the specific-goods method has been used in the illustrations in the preceding sections, although the dollar-value method is more widely used in practice. Under the specific-goods method the inventory is classified by unit of measurement (e.g., tons, yards, gallons) or by individual items or products. Under the dollar-value method inventories are computed in terms of dollars without the identification of specific items. Under both methods a base-year amount and subsequent "layers" of increases are determined separately. Inventories are divided into "pools" for "natural business units" for the purpose of measuring increases or decreases. The determination of the number and composition of pools is an important aspect of the LIFO method, which may significantly affect the tax benefits or the adverse tax consequences of changes in inventory costs and quantities.

SUMMARY

A summary of the principal matters discussed in this booklet follows:

- The LIFO method has been acceptable for financial reporting and tax purposes since 1939. The current interest in this method is influenced by both tax and accounting considerations.

- A change to LIFO may result in substantial tax savings during an inflationary period. In some circumstances, such savings may be partially or fully reversed—or possibly exceeded by additional taxes—in future years.

- Under present authoritative accounting pronouncements a change to LIFO must be justified on the basis that it "...constitutes an improvement in financial reporting and not on the basis of the income tax effect alone."

- In this context, improvement in financial reporting implies a better matching of costs with sales. This, in turn, depends both on the viewpoint concerning the matching concept and the facts as to the sales pricing pattern in relation to cost increases.

This booklet includes only a brief review of these matters. Therefore, if a change to LIFO is being considered, its effect should be analyzed carefully and discussed with the Company's accounting and tax advisors.

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